HONORING THE LEGACY OF SUSHRUTA

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Abstract:

Sushruta, often referred to as the "father of surgery" and "father of plastic surgery" contributed profoundly to the surgery and medicine. This article explores his contributions to the field of medicine and surgery. His text Sushruta Samhita comprises of various surgical procedures such as rhinoplasty, cheek and forehead flaps, amputations that are still relevant even today. This text also describes various instruments that were designed by Sushruta himself and also describes the classification of various types of surgical procedures. It also showcases his holistic approach of medicine, surgery, ethics, asepsis and patient care. By honoring Sushruta's legacy, we not only recognize his works but also draw inspiration from his holistic approach and ingenuity for advancing the medical and surgical techniques for better patient care.

Key words

Father of surgery, medical ethics, holistic approach, surgical anatomy, surgical instruments, Sushruta, Sushruta Samhita.

INTRODUCTION

The origins of modern surgical techniques take us back to one of the earliest documented treatises on surgery i.e., Sushruta Samhita, a Sanskrit text. This is attributed to Sushruta, the "Father of Surgery"[1] who prospered in 600 BCE in Banaras in India [2] Innovations of Sushruta in surgical techniques show his ingenuity and resourcefulness. The principles and practices mentioned in the Sushruta Samhita are the foundation stones for modern surgical techniques that are now saving lives globally.

THE LEGACY OF SUSHRUTA SAMHITA

The Sushruta Samhita, originally written in Sanskrit had its contents divided into 5 sections containing 186 chapters, covering over 1120

diseases. It was later translated to multiple other languages like Arabic, Persian, Tibetan, English, Hindi. It gives in detail the diverse aspects of medicine, anatomy, and surgery, paediatrics, toxicology, pharmacology and other branches of the traditional Indian medicine known as Ayurveda.

SUSHRUTA WAS THE FIRST TO CLASSIFY THE SURGICAL OPERATIONS AS FOLLOWS:

- Aharya - extractions of solid bodies,
- Bhedya – excising,
- Chhedya – incising,
- Eshya – probing,
- Lekhya – scarifying,
- Sivya – suturing,
- Vedhya – puncturing,
- Visravaniya – evacuating fluids.[3]

SOME OF THE OUTSTANDING CONTRIBUTIONS OF SUSHRUTA ARE:

1. RECONSTRUCTIVE SURGERY:

Sushruta developed advanced techniques that were well ahead of his era. These include nose reconstruction using cheek and forehead flaps, which became the foundation of modern plastic surgery, repair of split earlobes with facial flaps, ear piercing, repair of injured/cut lips, and the technique of skin grafting[3]. He used instruments that he designed and crafted himself in an era long before the modern advancements. For various of these contributions, he is assigned the title of "the Father of Plastic Surgery." [1 2]

2. ETHICS AND PATIENT CARE:

Sushruta highlighted the need of patient safety, asepsis, and medical ethics. These aspects remain integral to present day surgical practice. He is also known to lay foundation of original medical code of ethics during his tenure at the Banaras University[2].

3. SURGICAL TECHNIQUES AND MEDICINAL INFORMATION:

Sushruta Samhita provides details of various surgical techniques like incisions, extractions, cauterization, and other complex procedures like prostatectomy, hernia repair and caesarean section. Sushruta Samhita is a handbook of 1120 diseases, 700 medicinal herbs, and formulas prepared from non-organic and organic sources.[3]

4. ANATOMY AND DISSECTION:

Significance of understanding of human anatomy was also emphasized through his teachings. Sushruta's unique approach to cadaver dissection was that he primarily studied anatomical dissection on corpses of infants under age of 2 as other corpses were culturally cremated, and hence are not available for anatomical study. Of course, this is the reason for why the number of bones mentioned is more than 206 but it is of important notice that Sushruta mentioned the union of bones and

anastomoses of blood vessels. With his works Sushruta, the father of surgery, deserves contributions towards various aspects of the skeletal anatomy –

- Total number of bones
- Bone classifications - Valaya, Ruchika, Nalak
- Fracture types
- Joint dislocation types
- Sprains
- Their healing and rehabilitation process.[3] [4]

5. TRAUMA CARE:

Sushruta's contributions to modern day orthopaedic practice are through his detail on managing fractures, dislocations and various other injuries.[4]

MODERN-DAY SURGERY: A REFLECTION OF SUSHRUTA'S VISION

Many of the present day modern surgical techniques find their roots in teachings of Sushruta.

1. **RECONSTRUCTIVE AND COSMETIC SURGERY:**

Techniques of procedures such as rhinoplasty [1] described in the Sushruta Samhita, inspire contemporary reconstructive and aesthetic surgeries [2]. The foundation stone for innovations in microsurgery, flaps and prosthetics usage of present day.

2. SURGICAL TRAINING AND EDUCATION:

Concepts of hands-on learning, cadaveric dissection, simulated surgeries echo Sushruta's emphasis on experimental learning.

3. TRAUMA AND EMERGENCY CARE:

Sushruta's methods of damage control surgeries and amputations done after giving medicated wines to the patients as anaesthetics are seen in modern day trauma care.[3]

4. HOLISTIC APPROACH:

Sushruta had envisioned surgery as part of a holistic medical system. This philosophy has gained a strong foothold in today's modern surgical practice with emphasis being laid on prehabilitation before surgery and rehabilitation after surgery, mental health support to both patient and attendants via counselling to cope up with stressful episode of surgery and the latest advancement in this regard is a multidisciplinary team to promote a stress-free surgery and early recovery.[3]

TECHNOLOGY MEETS TRADITION

Contemporary surgery embraced technologies like robotics, artificial intelligence, 3D printing. Though these advancements may seem far-fetched from the ancient techniques of Sushruta, they manifest the same spirit of innovation and pursuit of better patient outcomes. For instance:

The precision attained with robot assisted surgeries is reiteration of Sushruta's emphasis on accuracy.

Virtual reality tools now used in surgical training are modern manifestations of his emphasis on skill-building through practice. One example is experimental application of devices like Apple Vision Pro in ophthalmic surgery. 10 ophthalmic surgeons wore this device during malposition surgery for the eyelid. The entire surgery was performed by the surgeons while wearing the visor. All the surgeons were to rate Apple Vision Pro visor at the end of the procedure based on the SUS (system usability scale) questionnaire. The results for the questionnaire were positive, with highly rated aspects being freedom of movement, practicality, workflow integration, and learning. All the surgeons who had participated, rated Apple Vision Pro more than 85/100 in the SUS questionnaire.[5]

GLOBAL RECOGNITION OF ANCIENT WISDOM

Sushruta Samhita is rapidly gaining recognition in the global medical setting. Its principles are being studied for their relevance to aspects like surgical ethics, holistic care, and innovative problem-solving. The integration of ancient wisdom with cutting-edge technology can strengthen the route of advanced medicine.

CONCLUSION

The strong acknowledgement of the Sushruta Samhita in contemporary medicine is a testament to the relevance of its teachings. The vision of Sushruta keeps inspiring the evolution of surgery, and is a constant reminder to us that roots of innovation lie in integrating the past and present and easing into the future, carrying this knowledge. Modern surgeons keep pushing boundaries with their new and out of the box thinking, and like this, they continue to honour the legacy of Sushruta which remains a zenith of motivation and ideas, and continue to be guiding light in the ever-evolving field of medicine.

By embracing the wisdom of Sushruta and integrating it with modern advancements, we ensure that his legacy not only survives but thrives in shaping the future of surgery.

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